

# Preface

You are what you know. Fifteenth-century Europeans ‘knew’ that the sky was made of closed concentric crystal spheres, rotating around a central earth and carrying the stars and planets. That ‘knowledge’ structured everything they did and thought, because it told them the truth. Then Galileo’s telescope changed the truth.

As a result, a hundred years later everybody ‘knew’ that the universe was open and infinite, working like a giant clock. Architecture, music, literature, science, economics, art, politics - everything - changed, mirroring the new view created by the change in the knowledge.

Today we live according to the latest version of how the universe functions. This view affects our behaviour and thought, just as previous versions affected those who lived with them. Like the people of the past, we disregard phenomena which do not fit our view because they are ‘wrong’ or outdated. Like our ancestors, we know the real truth.

At any time in the past, people have held a view of the way the universe works which was for them similarly definitive, whether it was based on myths or research. And at any time, that view they held was sooner or later altered by changes in the body of knowledge.

This book examines some of those moments of change, in order to show how the changes of view also generated major institutions or ways of thought which have since survived to become basic elements of modern life.

Each chapter begins at the point where the view is about to shift: in the eleventh century before the extraordinary discoveries by the Spanish Crusaders; in the Florentine economic boom of the fourteenth century before a new way of painting took Columbus to America; in the strange memory-world that existed before printing changed the meaning of ‘fact/’; with sixteenth-century gunnery developments that triggered the birth of modern science; in the early eighteenth century when hot English summers brought the Industrial Revolution; at the battlefield surgery stations of the French revolutionary armies where people first became statistics; with the nineteenth-century discovery of dinosaur fossils that led to the theory of evolution; with the electrical experiments of the 1820s which heralded the end of scientific certainty.

The last chapter examines the implications of this approach to knowledge and what it means. If all views at all times are valid, which is the right one? Is there any direction to the development of knowledge, or merely substitution of one form for another? If this is the case, can there be any permanent and unchanging values or standards? Has the course of learning about the universe been, as science would claim, a logical and objective search for the truth, or is each step taken for reasons related only to the theories of the time? Do scientific criteria change with changing social priorities? If they do, why is science accorded its privileged position? If all research is theory-laden, contextually determined, is knowledge merely what we decide it should be? Is the universe what we discover it is, or what we say it is? If knowledge is an artefact, will we go on inventing it, endlessly? And if so, is there no truth to seek?